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| TITLE OF THE INVENTION (500 characters max)  |  |                        |  |   |  |
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[Page 1 of 2]

Respectfully submitted,

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Date April 21, 2004

REGISTRATION NO. 50,925

(If appropriate)

Docket Number: 29981.78

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[Page 2 of 2]

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| Softswitch Environment with Media Gateway      | § |                              |
| Clusters                                       | § |                              |

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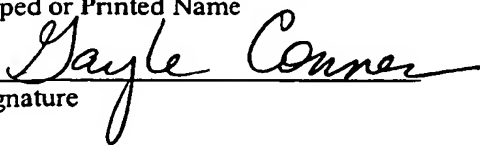
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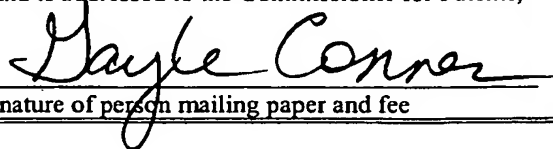


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**RESTRICTIVE AND PREFERENTIAL ROUTING IN A SOFTSWITCH  
ENVIRONMENT WITH MEDIA GATEWAY CLUSTERS**

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**RESTRICTIVE AND PREFERENTIAL ROUTING IN A SOFTSWITCH  
ENVIRONMENT WITH MEDIA GATEWAY CLUSTERS**

**WRITTEN DESCRIPTION**

The present disclosure relates generally to voice and data communications and, more particularly, to a wireless system and method for implementing restrictive and preferential routing in a softswitch environment with media gateway clusters.

It is to be understood that the following disclosure provides many different embodiments, or examples, for implementing different features of the disclosure. Specific examples of components and arrangements are described below to simplify the present disclosure. These are, of course, merely examples and are not intended to be limiting. In addition, the present disclosure may repeat reference numerals and/or letters in the various examples. This repetition is for the purpose of simplicity and clarity and does not in itself dictate a relationship between the various embodiments and/or configurations discussed.

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## 1 Overview

This document describes exemplary specifications for Restrictive and Preferential Routing in a WMG Cluster with and without an interconnect<sup>1</sup> and addresses how the current routing mechanism in a D-MSC/G-MSC (e.g., a Spatial Atrium D-MSC/G-MSC) may be enhanced to efficiently route calls in such a case.

### 1.1 Current Routing Mechanism

A WSS may provide advanced capabilities to route calls efficiently. For example, it may provide CIC based, time based, originating party based, called party address based, trunk group based, etc., routing mechanisms for call route selections.

The following diagram depicts an exemplary Number Translations and Routing Mechanism.

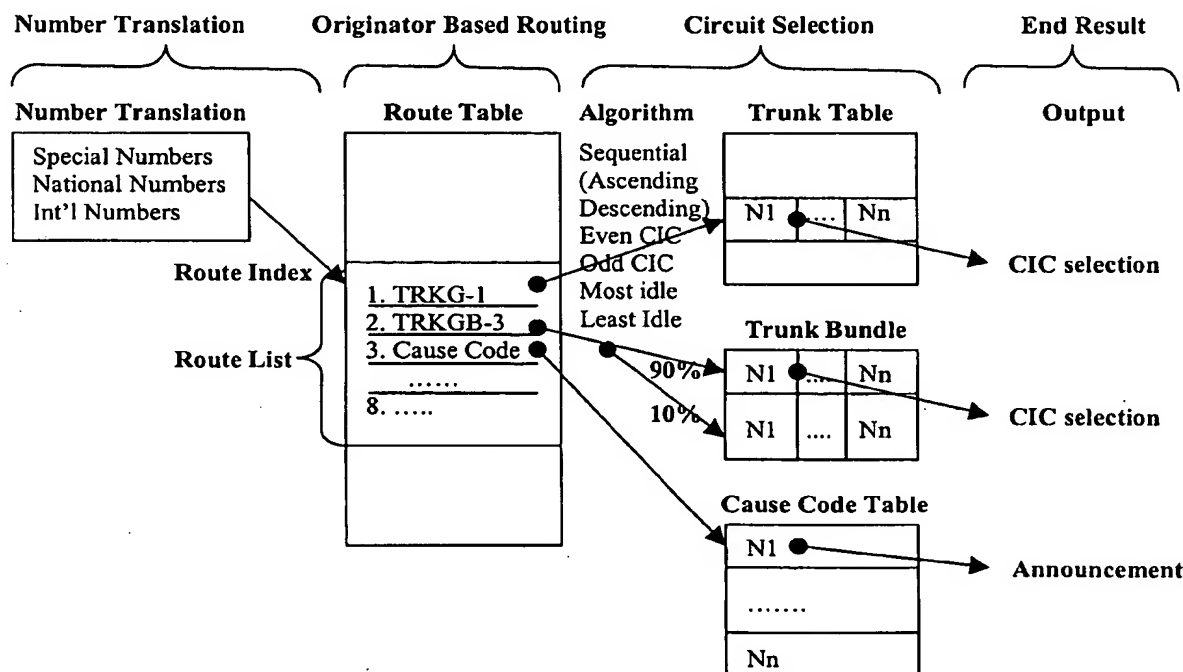


Figure 1: Number Translations and Routing Mechanism

However, the current routing mechanisms may provide no capability to assess the relative cost or availability of interconnect facilities in a WMG Cluster controlled by a WSS. As a result, in order to prevent the use of interconnect facilities that may not be present or optimize the use of interconnect facilities that are expensive, it may be necessary to treat routing for each WMG

<sup>1</sup> An interconnect could be an TDM, ATM or IP network

uniquely, especially if it is co-located with other WMGs in what the operator would otherwise consider to be a single switch location. Without special handling, interconnect facilities may need to be sufficient to cover random call distribution. This may be prohibitively expensive in a multi (e.g., 4) WMG cluster.

## **1.2 Exemplary Requirement**

When WMGs are clustered in one location, the operator expects to treat the entire cluster as one single switch and hence expects only one set of routing translations. This requirement poses challenges in limiting or avoiding the use of an interconnect WMG cluster that are controlled by a WSS. This document describes each scenario involved with/without interconnect in WMG cluster and addresses their routing mechanisms

## **1.3 Solution Proposal**

When there is no or limited interconnect available between WMGs, it is proposed to label each Trunk Group/Bundle in the Route List that is obtained through a route index and that the selection of circuit within a Trunk Group/Bundle (in the Route List) be based on the label. However, this label does not affect the progression through the route list. This solution maintains the current routing mechanism but adds a column called "Label" to the Route Table against each Trunk Group/Bundle.

Exemplary labels may be Restrictive, Preferential or None. The definitions of these labels are given below.

- **Restrictive Routing**

When there is no interconnect between WMGs, restricted routing forces a call to terminate on the same WMG where the call originated.

- **Preferential Routing**

When there is a limited interconnect between WMGs, preferential routing first tries to terminate a call on the same WMG where the call originated. If all the circuits on the same WMG are unavailable, then interconnect is used to connect to circuits connected to other WMG.

- **None**

No indication of Restrictive or Preferential routing. The default may perform circuit selection independent of WMG.

Consider the following example where Route-1 has the following route list

|        |                |
|--------|----------------|
| TRKG-A | <Preferential> |
| TRKG-B | <Restrictive>  |
| TRKG-C | <None>         |
| TRKG-D | <Preferential> |

In this case, TRKG-A is tried first, not TRKG-B. But when TRKG-A is tried, it looks for its own WMG first, then the other. So, the selection is as follows

- A – own WMG
- A – other WMG
- B – own WMG

C – any  
D – own WMG  
D – other WMG

## **2 References and Applicable Standards**

- [1] WMG Routing Call, The case for Restrictive and Preferential Trunk Selection: By Charles (Bert) Berteau
- [2] Change Request Form CR014 – PR778, Preferential Routing based on originating WMG: By Mike Aguilar
- [3] D-MSC Product Description Revision 6.2

### **2.1 Definitions & Abbreviations**

|       |                             |
|-------|-----------------------------|
| CIC   | Circuit Identification Code |
| DMSC  | Distributed MSC             |
| DPC   | Destination Point Code      |
| DN    | Directory Number            |
| FTN   | Forward To Number           |
| GMSC  | Gateway MSC                 |
| OPC   | Origination Point Code      |
| TRKG  | Trunk Group                 |
| TRKGB | Trunk Group Bundle          |
| WMG   | Wireless Media Gateway      |
| WSS   | Wireless Soft Switch        |

### 3 Scenario Description

The following section describes different exemplary network scenarios and their routing mechanisms, in addition to the details given in the “Case (B): Multiple MGWs, All in the same geographical location, an MGW cluster” in Reference [1].

#### 3.1 Scenario 1: Multiple/Cluster WMGs, all in the same geographical location without an interconnect

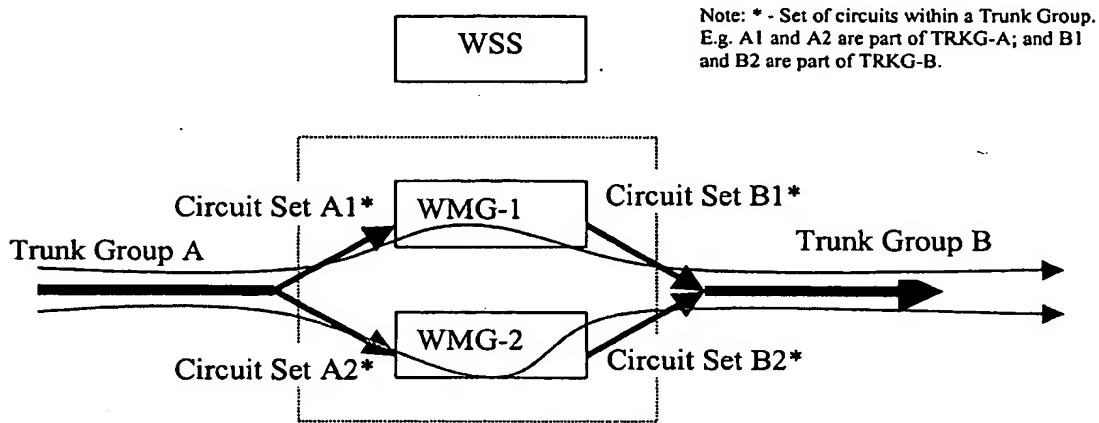


Figure 2: Trunk selection without an interconnect

A1 and A2 are not trunk groups but sets of circuits within Trunk Group-A that are connected to each of the two WMGs. Similarly, B1 and B2 are not trunk groups but sets of circuits within Trunk Group-B that are connected to each of the two WMGs.

##### Route List for Trunk Group-A:

| Destination Trunk Group | Routing Mechanism <sup>2</sup> | Comments  |
|-------------------------|--------------------------------|---|
| Trunk Group-B           | Restrictive                    | <ul style="list-style-type: none"> <li>• If a call lands on WMG-1, then a circuit in Circuit Set-B1<sup>3</sup> within Trunk Group-B may be selected.</li> <li>• If a call lands on WMG-2, then a circuit in Circuit Set-B2 within Trunk Group-B may be selected</li> <li>• No other options are available here.</li> </ul> |

Table 1: Route List for Trunk Group-A without an interconnect

The above diagram and routing list assume that the calls are originating from Trunk Group-A and terminating on Trunk Group-B. However, in a real case, the traffic may be bi-directional, meaning that the calls can originate either from Trunk Group-A or Trunk Group-B and

<sup>2</sup> Newly proposed routing label

<sup>3</sup> It is a set of circuits within Trunk Group B.

terminate on Trunk Group-B or Trunk Group-A. In such a case, the routing table may also include the following route list.

**Route List for Trunk Group-B:**

| <b>Destination Trunk Group</b> | <b>Routing Mechanism</b> | <b>Comments</b>   |
|--------------------------------|--------------------------|---|
| Trunk Group-A                  | Restrictive              | <ul style="list-style-type: none"><li>• If a call lands on WMG-1, then a circuit in Circuit Set-A1 within Trunk Group-A may be selected.</li><li>• If a call lands on WMG-2, then a circuit in Circuit Set-A2 within Trunk Group-A may be selected</li><li>• No other options are available here.</li></ul> |

**Table 2: Route List for Trunk Group-A without an interconnect**

### 3.2 Scenario 2: Multiple/Cluster WMGs, all in the same geographical location with an interconnect

In this scenario, there is an interconnect available between the two WMGs. Calls that land on WMG - A may preferentially be terminated on the same WMG-A. Similarly, calls that land on WMG-B may preferentially be terminated on the same WMG-B first. When these Preferential circuits are exhausted, then the interconnect between WMG-A and WMG-B may be used.

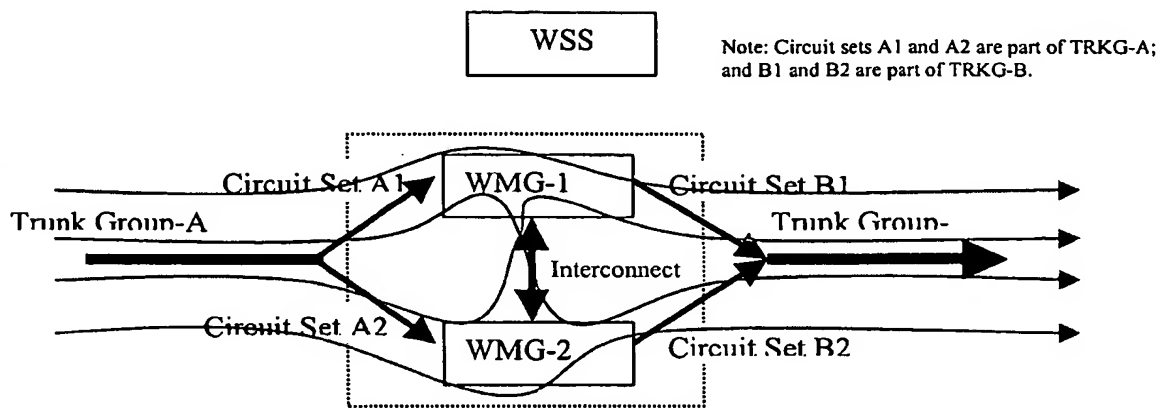


Figure 3: Trunk selection with an interconnect

Route List for Trunk Group-A:

| Destination Trunk Group | Routing Mechanism <sup>4</sup> | Comments   |
|-------------------------|--------------------------------|--|
| Trunk Group-B           | Preferential                   | <ul style="list-style-type: none"> <li>• If a call lands on WMG-1, then a circuit in Circuit Set-B1 within Trunk Group-B may be selected. This means that the call may be terminated on the same WMG as it originated. If all the circuits in that Circuit Set-B1 are unavailable, then a circuit in Circuit Set-B2 may be selected via Interconnect and WMG-2. In other words, first try the same WMG, and then try the other WMG via Interconnect.</li> <li>• If a call lands on WMG-2, then a circuit in Circuit Set-B2 within Trunk Group-B may be selected. This means that the call may be terminated on the same WMG as it originated. If all the circuits in that Circuit Set-B2 are unavailable, then a circuit in Circuit Set-B1 may be selected via Interconnect and WMG-1. In other words, first try the same WMG, and then try the other WMG via Interconnect.</li> </ul> |

Table 3: Route List for Trunk Group-A with an interconnect

<sup>4</sup> Newly proposed routing label

Similarly, if Trunk Group-B were the originating trunk, then the route list would be as follows.

**Route List for Trunk Group-B:**

| <b>Destination Trunk Group</b> | <b>Routing Mechanism</b> | <b>Comments</b>   |
|--------------------------------|--------------------------|---|
| Trunk Group-A                  | Preferential             | <ul style="list-style-type: none"><li>• If a call lands on WMG-1, then a circuit in Circuit Set-A1 within Trunk Group-A may be selected. This means that the call may be terminated on the same WMG as it originated. If all the circuits in that Circuit Set-A1 are unavailable, then a circuit in Circuit Set-A2 may be selected via Interconnect and WMG-2. In other words, first try the same WMG, and then try the other WMG via Interconnect.</li><li>• If a call lands on WMG-2, then a circuit in Circuit Set-A2 within Trunk Group-A may be selected. This means that the call may be terminated on the same WMG as it originated. If all the circuits in that Circuit Set-A2 are exhausted, then a circuit in Circuit Set-A1 may be selected via Interconnect and WMG-B. In other words, first try the same WMG, and then try the other WMG via Interconnect.</li></ul> |

**Table 4: Route List for Trunk Group-B with an interconnect**

Please refer to the Number translations and routing mechanism diagram (Figure-1). The route list contains a maximum of eight entries that include Trunk Group, Trunk Group Bundle, Cause Code etc.; each entry has Type, Parameter and Out Pulse Index. The routing mechanism searches through this list in the sequential order. Note that if a trunk group needs to be selected first, then it may be placed first in the order, which can be done through EMS screen.

Though this trunk group ordering may help in a non-interconnect network scenario, it may not efficiently route the calls in an interconnect scenario as in the Scenario-2, where a route list entry can lead to multiple paths, one without an interconnect which is the most preferred and the rest with an interconnect. In the present example, there is no guarantee that the non-interconnect (same WMG) option would be utilized first and then an interconnect. Accordingly, a labeling mechanism may be used to guarantee the ordering of paths within a route entry.

### 3.3 Scenario 3: Multiple/Cluster WMGs, each in a different geographical location without an interconnect within a site or between sites

This scenario is similar to Scenario-1; however, the route list for Site-2 may be added to the routing table. For purposes of understanding, the route lists for this scenario are given separately. However, these route lists may be placed in one routing table on the WSS.

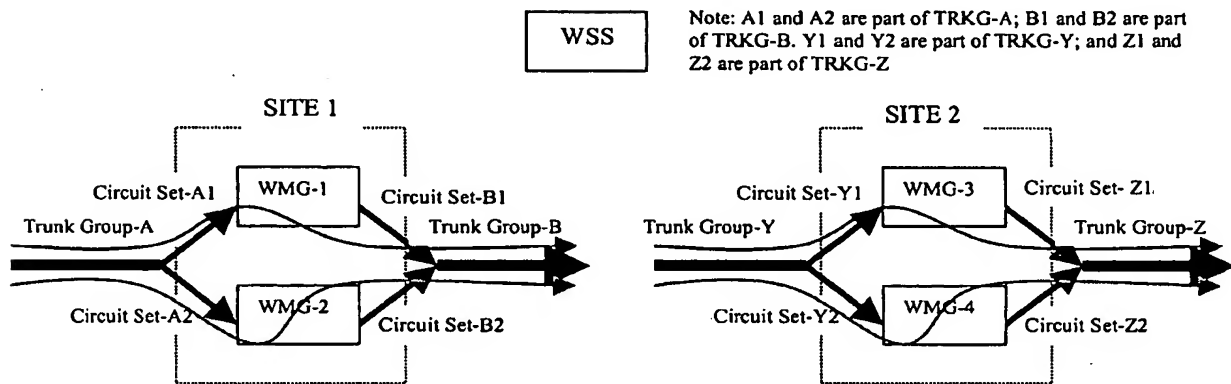


Figure 4: Trunk selection without an interconnect in a multi site WMG's cluster

#### Route Lists for Site-1:

| Destination Trunk Group | Routing Mechanism | Comments  |
|-------------------------|-------------------|---|
| Trunk Group-B           | Restrictive       | <ul style="list-style-type: none"> <li>If a call lands on WMG-1, then a circuit in Circuit Set-B1 within Trunk Group-B may be selected.</li> <li>If a call lands on WMG-2, then a circuit in Circuit Set-B2 within Trunk Group-B may be selected</li> <li>No other options are available here.</li> </ul> |
| Trunk Group-A           | Restrictive       | <ul style="list-style-type: none"> <li>If a call lands on WMG-1, then a circuit in Circuit Set-A1 within Trunk Group-A may be selected.</li> <li>If a call lands on WMG-2, then a circuit in Circuit Set-A2 within Trunk Group-A may be selected</li> <li>No other options are available here.</li> </ul> |

Table 5: Route Lists for Site-1 without an interconnect

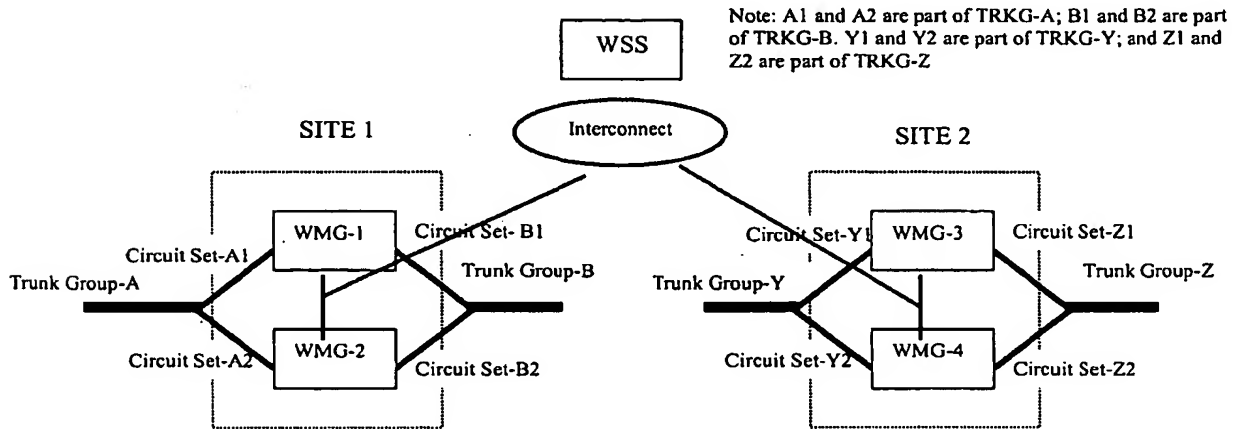
Similarly, for the Site-2, the route list is as follows

**Route Lists for Site-2:**

| Destination Trunk Group | Routing Mechanism | Comments  |
|-------------------------|-------------------|---|
| Trunk Group-Z           | Restrictive       | <ul style="list-style-type: none"><li>• If a call lands on WMG-3, then a circuit in Circuit Set-Z1 within Trunk Group-Z may be selected.</li><li>• If a call lands on WMG-4, then a circuit in Circuit Set-Z2 within Trunk Group-Z may be selected</li><li>• No other options are available here.</li></ul> |
| Trunk Group-Y           | Restrictive       | <ul style="list-style-type: none"><li>• If a call lands on WMG-3, then a circuit in Circuit Set-Y1 within Trunk Group-Y may be selected.</li><li>• If a call lands on WMG-4, then a circuit in Circuit Set-Y2 within Trunk Group-Y may be selected</li><li>• No other options are available here.</li></ul> |

**Table 6: Route Lists for Site-2 without an interconnect**

### 3.4 Scenario 4: Multiple/Cluster WMGs, each in a different geographical location with an interconnect within a site and between sites



**Figure 5: Trunk selection with an interconnect in a multi site WMG's cluster**

In this scenario, there is a limited interconnect available among the WMGs to form a cluster. The following is the Route List for Trunk Group-A as the originating trunk group with B, Y and Z as the terminating trunk groups. Route Lists for B, Y and Z as the origination trunk can be constructed similar to the following route lists.

#### Route List for Trunk Group-A in Site-1:

| Destination Trunk Group | Routing Mechanism | Comments   |
|-------------------------|-------------------|--|
| Trunk Group – B         | Preferential      | <ul style="list-style-type: none"> <li>If a call lands on WMG-1, then a circuit on Circuit Set-B1 within Trunk Group-B may be selected. This means that the call may be terminated on the same WMG where it originated. If all the circuits in that Circuit Set-B1 are unavailable, then Circuit Set-B2 may be selected via Interconnect and WMG-2. In other words, first try the same WMG, and then try the other WMGs via Interconnect.</li> <li>If a call lands on WMG-2, then a circuit on Circuit Set-B2 within Trunk Group-B may be selected. This means that the call may be terminated on the same WMG where it originated. If all the circuits in that Circuit Set-B2 are unavailable, then Circuit Set-B1 may be selected via Interconnect and WMG-1. In other words, first try the same WMG, and then try the other WMGs via Interconnect.</li> </ul> |
| Trunk Group – Y         | None              | <ul style="list-style-type: none"> <li>Here the call may be routed through the Interconnect available.</li> </ul>  |
| Trunk Group – Z         | None              | <ul style="list-style-type: none"> <li>Here the call may be routed through the Interconnect available.</li> </ul>  |

**Table 7: Route Lists for Trunk Group-A to terminate calls on B, Y and Z with an interconnect**

Note that the order of trunk groups in the above route list can be changed to TRKG-Y, TRKG-Z and TRKG-B, with TRKG-B still carrying the Preferential routing mechanism.

### 3.5 Scenario 5: Multiple/Cluster WMGs within a geographical location with an interconnect

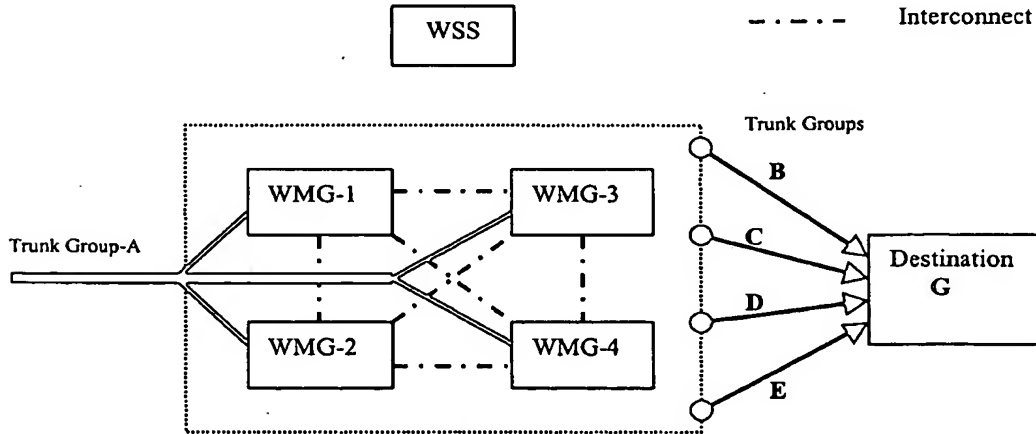


Figure 6: Trunk selection with an interconnect in a multi site WMG's cluster

In this scenario, there is a limited interconnect available among the WMGs to form a cluster. The incoming circuits are split and distributed among the WMGs equally. All the WMGs are connected to four different outgoing Trunk Groups (Trunk Group-B being Preferential, Trunk Group-C being Restrictive, Trunk Group-D being none, and Trunk Group-E being Preferential). The following are the Route Lists for Trunk Group-A as the originating trunk group with B, C, D and E as the terminating trunk groups.

#### Route List for Trunk Group-A:

| Destination Trunk Group | Routing Mechanism | Comments  |
|-------------------------|-------------------|---|
| Trunk Group-B           | Preferential      | <ul style="list-style-type: none"> <li>◦ If a call lands on WMG-1, then a circuit on Circuit Set-B1 in Trunk Group-B may be selected. This means that the call may be terminated on the same WMG where it originated. If all the circuits in that Circuit Set-B1 are unavailable, then an Interconnect is used to reach Trunk Group-B. In other words, first try the same WMG, and then try the other WMGs via Interconnect.</li> <li>◦ If a call lands on WMG-2, then a circuit on Circuit Set-B2 in Trunk Group-B may be selected. This means that the call may be terminated on the same WMG where it originated. If all the circuits in that Circuit Set-B2 are unavailable, then an Interconnect is used to reach Trunk Group-B. In other words, first try the same WMG, and then try the other WMGs via Interconnect.</li> <li>◦ If a call lands on WMG-3, then a circuit on Circuit Set-B3 in Trunk Group-B may be selected. This means that the call may be terminated on the same WMG where it originated. If all the circuits in that Circuit Set-B3 are</li> </ul> |

|               |              |  |
|---------------|--------------|--|
|               |              | <p>unavailable, then an Interconnect is used to reach Trunk Group-B. In other words, first try the same WMG, and then try the other WMGs via Interconnect.</p> <ul style="list-style-type: none"> <li>◦ If a call lands on WMG-4, then a circuit on Circuit Set-B4 in Trunk Group-B may be selected. This means that the call may be terminated on the same WMG where it originated. If all the circuits in that Circuit Set-B4 are unavailable, then an Interconnect is used to reach Trunk Group-B. In other words, first try the same WMG, and then try the other WMGs via Interconnect.</li> </ul>   |
| Trunk Group-C | Restrictive  | <ul style="list-style-type: none"> <li>◦ If a call lands on a particular WMG, then the call needs to be terminated on the same WMG to reach the Destination-G.</li> <li>◦ No other options are available here.</li> </ul>  |
| Trunk Group-D | None         | <ul style="list-style-type: none"> <li>◦ Call can be terminated on any WMG via Interconnect to reach Trunk Group-C.</li> </ul>   |
| Trunk Group-E | Preferential | <ul style="list-style-type: none"> <li>◦ If a call lands on WMG-1, then a circuit on Circuit Set-E1 in Trunk Group-E may be selected. This means that the call may be terminated on the same WMG where it originated. If all the circuits in that Circuit Set-E1 are unavailable, then Interconnect is used to reach Trunk Group-B. In other words, first try the same WMG, and then try the other WMGs via Interconnect.</li> <li>◦ If a call lands on WMG-2, then a circuit on Circuit Set-E2 in Trunk Group-E may be selected. This means that the call may be terminated on the same WMG where it originated. If all the circuits in that Circuit Set-E2 are unavailable, then an Interconnect is used to reach Trunk Group-E. In other words, first try the same WMG, and then try the other WMGs via Interconnect.</li> <li>◦ If a call lands on WMG-3, then a circuit on Circuit Set-E3 in Trunk Group-E may be selected. This means that the call may be terminated on the same WMG where it originated. If all the circuits in that Circuit Set-E3 are unavailable, then an Interconnect is used to reach Trunk Group-E. In other words, first try the same WMG, and then try the other WMGs via Interconnect.</li> <li>◦ If a call lands on WMG-4, then a circuit on Circuit Set-E4 in Trunk Group-E may be selected. This means that the call may be terminated on the same WMG where it originated. If all the circuits in that Circuit Set-E4 are unavailable, then Interconnect is used to reach Trunk Group-E. In other words, first try the same WMG, and then try the other WMGs via Interconnect.</li> </ul> |

**Table 8: Route List for Trunk Group-A terminating on B, C, D and E with an interconnect**

### 3.6 Scenario 6: Multiple/Cluster WMGs, each in a different geographical location with a limited interconnect within a site and between sites

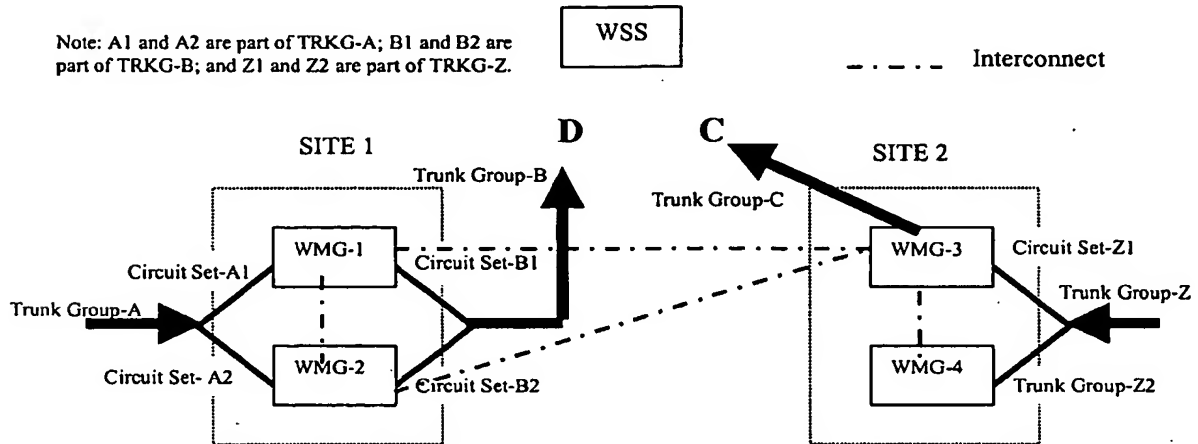


Figure 7: Trunk selection with an interconnect in a multi site WMG's cluster

In this scenario, there is a limited interconnect available among the WMGs to form a cluster. The following are the Route Lists for Trunk Group-A as the originating trunk group with B and C as the terminating trunk groups. Route Lists for B and C as the originating trunk groups can be constructed similar to the following route lists.

#### Route Lists for Trunk Group-A to reach Trunk Groups B and C:

| Destination Trunk Group | Routing Mechanism | Comments   |
|-------------------------|-------------------|--|
| Trunk Group – B         | Preferential      | <ul style="list-style-type: none"> <li>If a call lands on WMG-1, then a circuit on Circuit Set-B1 within Trunk Group-B may be selected. This means that the call may be terminated on the same WMG where it originated. If all the circuits in that Circuit Set-B1 are unavailable, then an Interconnect can be used to reach Trunk Group-B. In other words, first try the same WMG, and then try the other WMGs via Interconnect.</li> <li>If a call lands on WMG-2, then a circuit on Circuit Set-B2 within Trunk Group-B may be selected. This means that the call may be terminated on the same WMG where it originated. If all the trunks in that Circuit Set-B2 are unavailable, then an Interconnect can be used to reach Trunk Group-B. In other words, first try the same WMG, and then try the other WMGs via Interconnect.</li> </ul> |
| Trunk Group – C         | None              | <ul style="list-style-type: none"> <li>Call can be terminated on any WMG via Interconnect to reach Trunk Group-C.</li> </ul>   |

Table 9: Route Lists for Trunk Group-A to terminate calls on B and C with an interconnect

## 4 Exemplary Requirements

### 4.1 Route List Changes

The scenarios discussed in the previous section highlight two important characteristics to restrictive and preferential routing: (a) the restrictive versus preferential decision may not be switch-wide, because some WMG clusters might have interconnect facilities (preferential routing case), whilst others have none at all (restrictive case); and (b) the decision as to whether or not to preferentially select facilities on the same WMG may not be made on a route list basis, but rather on a per-trunk group basis (e.g. routes within route list).

Accordingly, in one example, the proposed change is only on the Trunk Groups/Bundles in the Route List (and not in the Number Translations or Circuit Selection Algorithm). The current data structure of an entry in the Route List is as follows

|                |                   |
|----------------|-------------------|
| TYPE1          | TINYINT NOT NULL  |
| PARAMETER1     | INTEGER NOT NULL  |
| OUTPULSEINDEX1 | SMALLINT NOT NULL |

The above data structure may include the proposed "LABEL" as an additional field as given below.

|                |                   |
|----------------|-------------------|
| TYPE1          | TINYINT NOT NULL  |
| PARAMETER1     | INTEGER NOT NULL  |
| OUTPULSEINDEX1 | SMALLINT NOT NULL |
| LABEL          |                   |

The LABEL field may be a small integer but not null. Exemplary possible values and priorities for the LABEL field are as follows.

| LABEL Value | Routing Mechanism | Comments   |
|-------------|-------------------|--|
| 1           | Restrictive       |  |
| 2           | Preferential      | Preferential label can act as an indicator to the software to terminate calls on the same WMG first and if all the circuits on the same WMG are unavailable, then the calls may be terminated via an Interconnect. Without this indicator, there is no mechanism for software to make the distinction and hence the routing mechanism may not be very efficient. |
| 3           | None              | This is the default routing mechanism if Restrictive or Preferential is not selected   |

Table 10: Label values, routing mechanisms and priorities

## **5 Operational Aspects**

### **5.1 Provisioning and Non-Blocking**

- To benefit from Restrictive and Preferential routing, the incoming trunk group to a cluster may have circuits spread (proportionately to total ports) across all WMGs in the cluster.
- When the routes are configured on the EMS screen during provisioning, the routing mechanism (LABEL) list may be displayed to select Restrictive, Preferential or None. "None" may be used as the default if Restrictive or Preferential is not selected.

### **5.2 Capacity**

- The proposed change may not make changes outside of a certain scope to the route list data structure and may not add more data so that there is a limitation on the cache where the route table resides.

### **5.3 Availability & Redundancy**

- The change may not hinder the availability or the geographical redundancy of the system in anyway.
- In the case of fail over, the route list may be recovered or duplicated onto a healthy system.

### **5.4 Billing**

- The selected route with the proposed change may be collected for analysis purposes (e.g., in case this information is significant to the Network/Service Provider for billing/tariff purposes).

### **5.5 Reliability and Complexity**

- The system may meet certain reliably standards to route the calls efficiently in a cluster of WMGs.
- The routing mechanism may be simple and limited to Route list and call processing module.

### **5.6 Statistics**

- Selection of the route may be collected for statistics purpose (e.g., in case this info is significant to the Network/Service Provider for Network Usage Management purposes).
- The statistics may be collected and displayed on the appropriate EMS screen

### **5.7 Performance**

- The design and implementation may make sure that the response time for circuit selection for all cases (Restrictive and Preferential) are comparable to current circuit selection times.
- Route selections may be made efficiently so as to terminate a call on the same WMG, where the call was originated. If all the circuits on the same WMG are unavailable, then an interconnect may be selected.

- The change may not significantly increase the call establishment time involving a WMG cluster
- A generic routing mechanism that can satisfy various network topologies efficiently may be developed.
- The system performance may be reduced or seriously impacted due to the various additions involved in the change.
- The logging and trace of the proposed change may be an overhead and impact the performance of the normal operation of the system.

Accordingly, while the disclosure has been particularly shown and described with reference to specific examples, it will be understood by those skilled in the art that various changes in form and detail may be made therein without departing from the spirit and scope of the disclosure. It is understood that several modifications, changes and substitutions are intended in the foregoing disclosure and in some instances some features of the disclosure will be employed without a corresponding use of other features. For example, various steps in the above described methods may be combined, further divided, or eliminated entirely. Furthermore, steps may be performed in any order, and steps described with respect to different methods may be combined into a single method. In addition, data flows other than those illustrated may be used to provide identical or similar functionally. Accordingly, it is appropriate that the appended claims be construed broadly and in a manner consistent with the scope of the disclosure.

**WHAT IS CLAIMED IS:**

1. A system and method for implementing restrictive and preferential routing in a softswitch environment with media gateway clusters substantially as herein described and illustrated in the accompanying drawings.

## **Application Data Sheet**

### **Application Information**

|                                  |  |
|----------------------------------|--|
| Application Type::               | Provisional  |
| Title::                          | RESTRICTIVE AND PREFERENTIAL ROUTING<br>IN A SOFTSWITCH ENVIRONMENT WITH<br>MEDIA GATEWAY CLUSTERS |
| Attorney Docket Number::         | 29981.78   |
| Request for Early Publication?:: | No   |
| Request for Non-Publication?::   | No   |
| Small Entity::                   | Yes  |
| Petition Included?::             | No   |
| Secrecy Order in Parent App.?::  | No   |

### **Applicant Information**

|   |                       |
|---|-----------------------|
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| State or Province of Residence::        | TX                    |
| Country of Residence::                  | US                    |
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From the INTERNATIONAL BUREAU

**PCT**NOTIFICATION CONCERNING  
SUBMISSION OR TRANSMITTAL  
OF PRIORITY DOCUMENT

To:

SMITH, Jessica, W.  
Alcatel Wireless, Inc.  
3400 W. Plano Parkway, M/S LEGL2  
Plano, TX 75075  
ETATS-UNIS D'AMERIQUE

(PCT Administrative Instructions, Section 411)

|   |  |  |  |
|---|--|--|--|
| Date of mailing (day/month/year)<br>20 June 2005 (20.06.2005) |  |  |  |
| Applicant's or agent's file reference<br>139381WO             | IMPORTANT NOTIFICATION   |  |  |
| International application No.<br>PCT/US2005/013826            | International filing date (day/month/year)<br>21 April 2005 (21.04.2005) |  |  |
| International publication date (day/month/year)               | Priority date (day/month/year)<br>21 April 2004 (21.04.2004)             |  |  |
| Applicant<br>ALCATEL WIRELESS, INC. et al                     |  |  |  |

- By means of this Form, which replaces any previously issued notification concerning submission or transmittal of priority documents, the applicant is hereby notified of the date of receipt by the International Bureau of the priority document(s) relating to all earlier application(s) whose priority is claimed. Unless otherwise indicated by the letters "NR", in the right-hand column or by an asterisk appearing next to a date of receipt, the priority document concerned was submitted or transmitted to the International Bureau in compliance with Rule 17.1(a) or (b).
- (If applicable)* The letters "NR" appearing in the right-hand column denote a priority document which, on the date of mailing of this Form, had not yet been received by the International Bureau under Rule 17.1(a) or (b). Where, under Rule 17.1(a), the priority document must be submitted by the applicant to the receiving Office or the International Bureau, but the applicant fails to submit the priority document within the applicable time limit under that Rule, the attention of the applicant is directed to Rule 17.1(c) which provides that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within a time limit which is reasonable under the circumstances.
- (If applicable)* An asterisk (\*) appearing next to a date of receipt, in the right-hand column, denotes a priority document submitted or transmitted to the International Bureau but not in compliance with Rule 17.1(a) or (b) (the priority document was received after the time limit prescribed in Rule 17.1(a) or the request to prepare and transmit the priority document was submitted to the receiving Office after the applicable time limit under Rule 17.1(b)). Even though the priority document was not furnished in compliance with Rule 17.1(a) or (b), the International Bureau will nevertheless transmit a copy of the document to the designated Offices, for their consideration. In case such a copy is not accepted by the designated Office as the priority document, Rule 17.1(c) provides that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within a time limit which is reasonable under the circumstances.

| <u>Priority date</u>       | <u>Priority application No.</u> | <u>Country or regional Office<br/>or PCT receiving Office</u> | <u>Date of receipt<br/>of priority document</u> |
|----------------------------|---------------------------------|---|---|
| 21 April 2004 (21.04.2004) | 60/564,003                      | US  | 26 May 2005 (26.05.2005)                        |

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